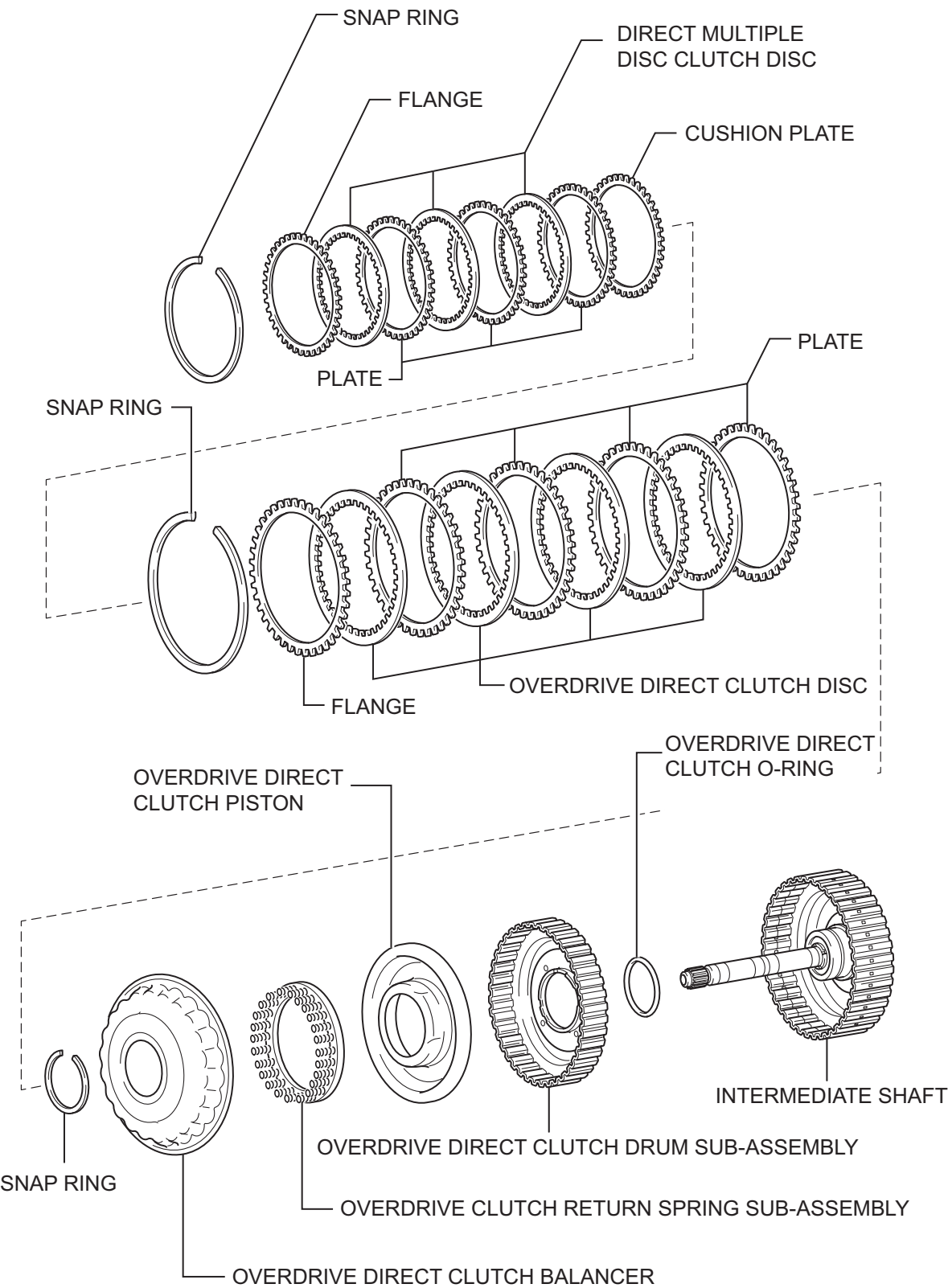


# DIRECT CLUTCH

## COMPONENTS

AX



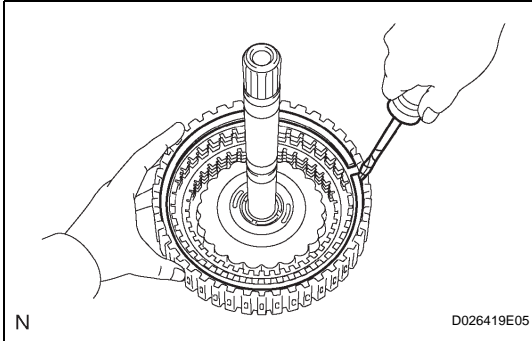
## DISASSEMBLY

1. **INSPECT PACK CLEARANCE OF REVERSE CLUTCH**  
(See page [AX-263](#))

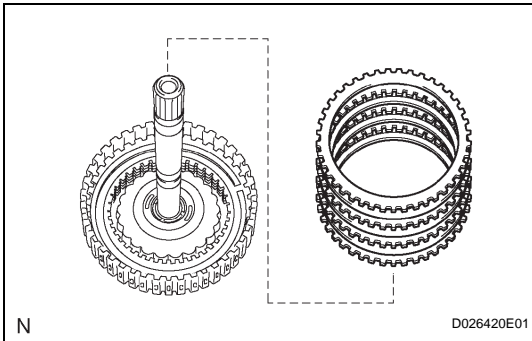
2. **INSPECT PACK CLEARANCE OF DIRECT CLUTCH AND OVERDRIVE CLUTCH** (See page [AX-263](#))

3. **REMOVE DIRECT MULTIPLE DISC CLUTCH DISC**

- (a) Using a screwdriver, remove the snap ring from the intermediate shaft.

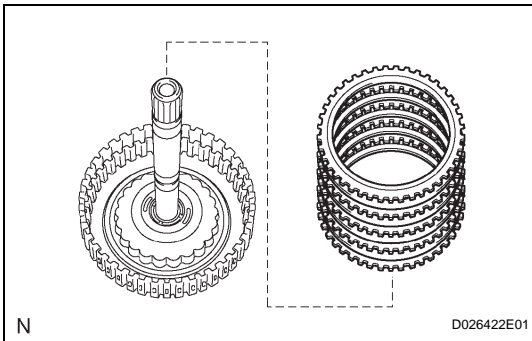


- (b) Remove the flange, 3 discs, 3 plates and cushion plate from the intermediate shaft.



4. **REMOVE OVERDRIVE DIRECT CLUTCH DISC**

- (a) Using a screwdriver, remove the snap ring from the intermediate shaft.
- (b) Remove the flange, 4 discs and 4 plates from the intermediate shaft.



5. **REMOVE OVERDRIVE CLUTCH RETURN SPRING SUB-ASSEMBLY**

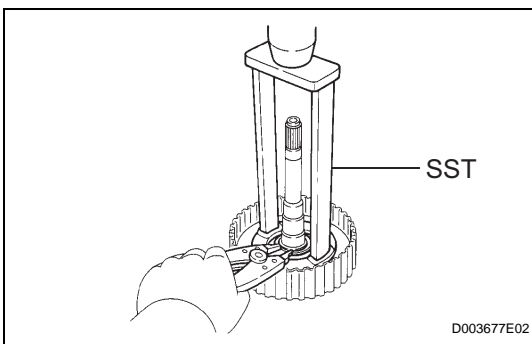
- (a) Place SST on the clutch balancer and compress the spring with a press.

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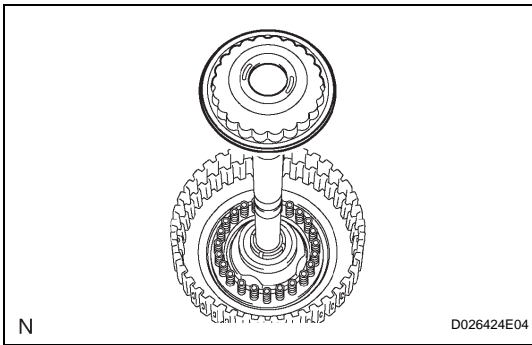
- (b) Using a snap ring expander, remove the snap ring from the direct clutch drum.

**NOTICE:**

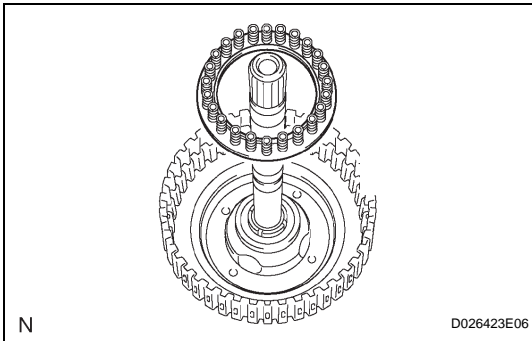
- Stop the press when the spring seat is lowered to a position 1 to 2 mm (0.039 to 0.078 in.) from the snap ring groove. This prevents the spring seat from being deformed.
- Do not expand the snap ring excessively.



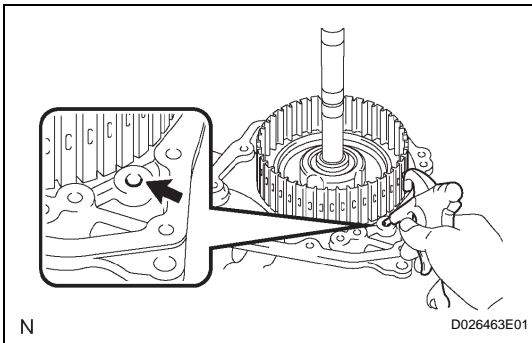
AX



- (c) Remove the clutch balancer from the direct clutch drum.

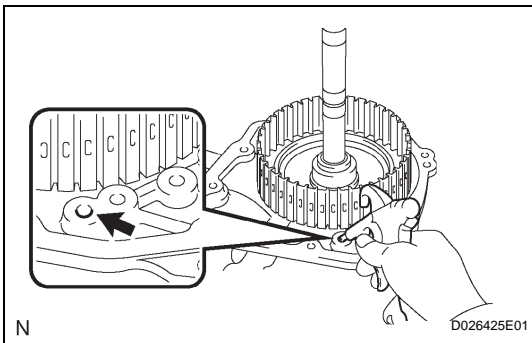


- (d) Remove the overdrive clutch return spring from the direct clutch drum.



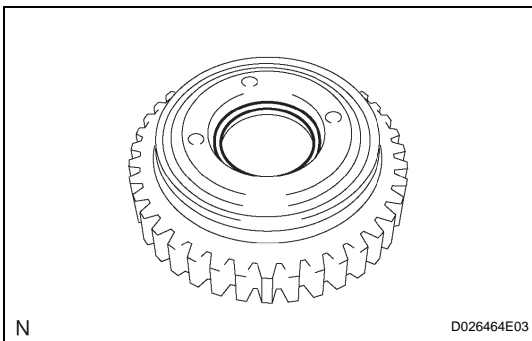
## 6. REMOVE OVERDRIVE DIRECT CLUTCH PISTON

- (a) Install the intermediate shaft on the transaxle rear cover.
- (b) Holding the direct clutch piston with your hand, apply compressed air (392 kPa, 4.0 kgf/cm<sup>2</sup>, 57 psi) to the transaxle rear cover to remove the direct clutch piston.



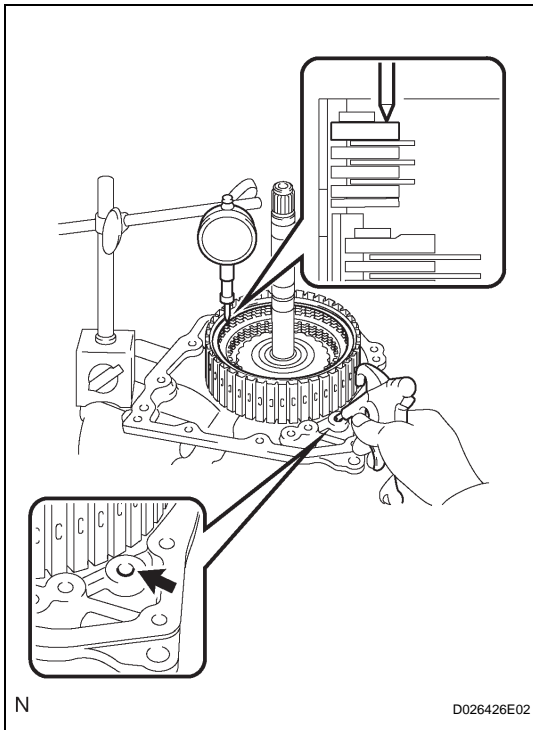
## 7. REMOVE OVERDRIVE DIRECT CLUTCH DRUM SUB-ASSEMBLY

- (a) Holding the direct clutch drum by hand, apply compressed air (392 kPa, 4.0 kgf/cm<sup>2</sup>, 57 psi) to the transaxle rear cover to remove the direct clutch drum.



## 8. REMOVE OVERDRIVE DIRECT CLUTCH O-RING

- (a) Using a screwdriver, remove the O-ring from the direct clutch drum.



## INSPECTION

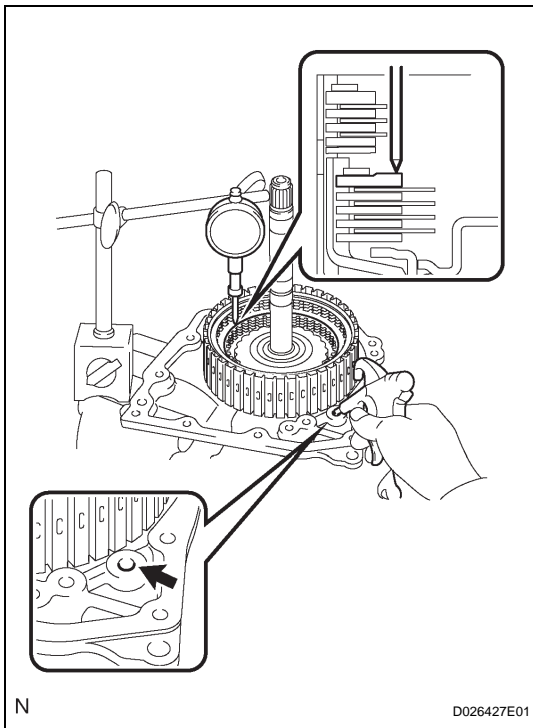
### 1. INSPECT PACK CLEARANCE OF REVERSE CLUTCH

- Install the intermediate shaft and needle roller bearing onto the transaxle rear cover.
- Using a dial indicator, measure the reverse clutch pack clearance while applying and releasing compressed air (392 kPa, 4.0 kgf/cm<sup>2</sup>, 57 psi).

**Standard pack clearance:**

**0.60 to 0.82 mm (0.0236 to 0.0323 in.)**

If the pack clearance is not as specified, inspect the discs, plates and flange.



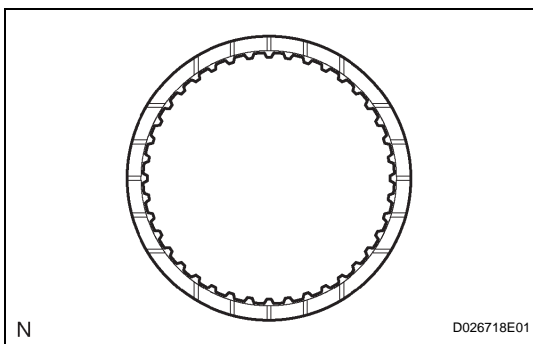
### 2. INSPECT PACK CLEARANCE OF DIRECT CLUTCH AND OVERDRIVE CLUTCH

- Using a dial indicator, measure the direct clutch and overdrive clutch pack clearance while applying and releasing compressed air (392 kPa, 4.0 kgf/cm<sup>2</sup>, 57 psi).

**Standard pack clearance:**

**0.61 to 0.83 mm (0.0240 to 0.0327 in.)**

If the pack clearance is not as specified, inspect the discs, plates and flange.



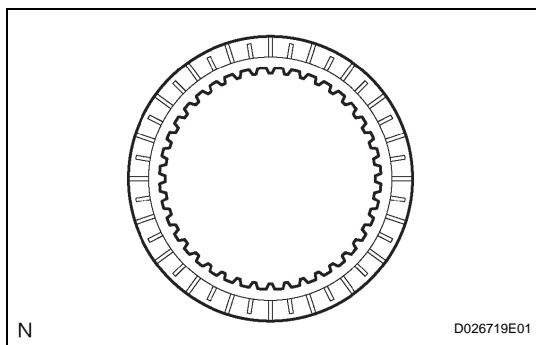
### 3. INSPECT DIRECT MULTIPLE DISC CLUTCH DISC

- Check if the sliding surfaces of the disc, plate and flange are worn or burnt. If necessary, replace them.

**NOTICE:**

- If the lining of the disc comes off or is discolored, or if a part of the groove is worn, replace all the discs.
- Before installing new discs, immerse them in ATF for at least 15 minutes.

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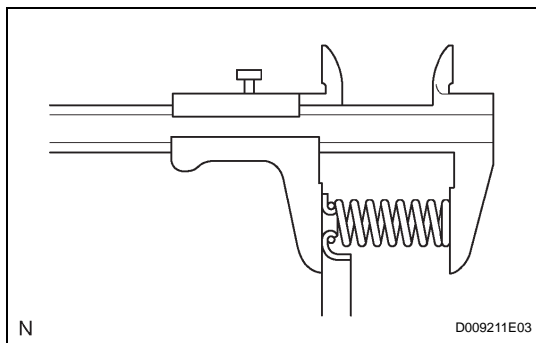


#### 4. INSPECT OVERDRIVE DIRECT CLUTCH DISC

- (a) Check if the sliding surface of the disc, plate and flange are worn or burnt.  
If necessary, replace them.

**NOTICE:**

- If the lining of the disc comes off or is discolored, or if a part of the groove is worn, replace all the discs.
- Before installing new discs, immerse them in ATF for at least 15 minutes.



#### 5. INSPECT OVERDRIVE CLUTCH RETURN SPRING SUB-ASSEMBLY

- (a) Using a vernier caliper, measure the free length of the spring together with the spring seat.

**Standard free length:**

**25.91 mm (1.0201 in.)**

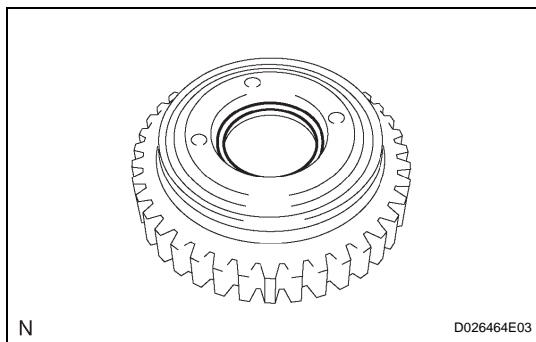
## REASSEMBLY

#### 1. INSTALL OVERDRIVE DIRECT CLUTCH O-RING

- (a) Coat the O-ring with ATF, and install it to the direct clutch drum.

**NOTICE:**

**Make sure that the O-ring is not twisted or pinched when it is installed.**

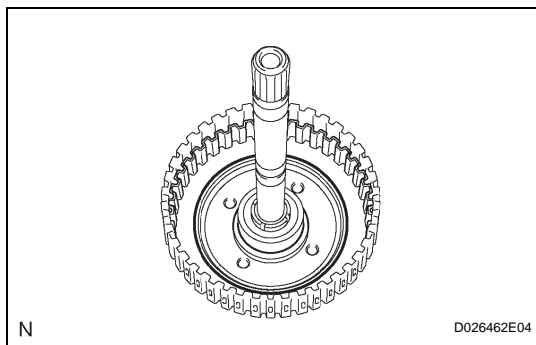


#### 2. INSTALL OVERDRIVE DIRECT CLUTCH DRUM SUB-ASSEMBLY

- (a) Coat the direct clutch drum with ATF, and install it to the intermediate shaft.

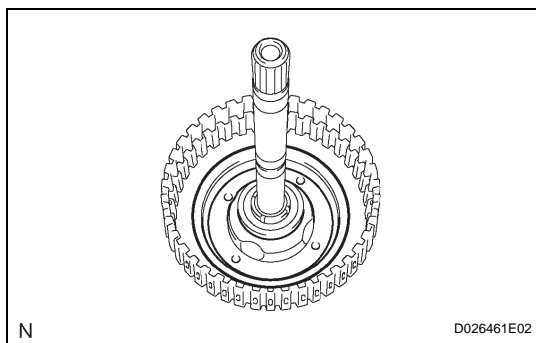
**NOTICE:**

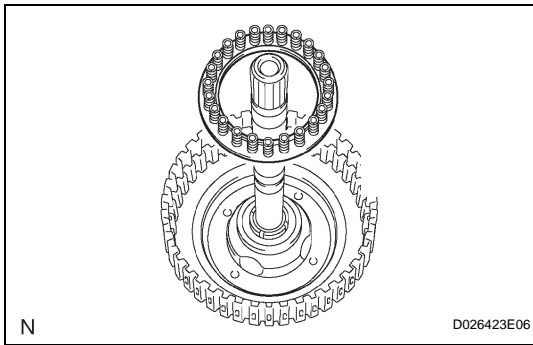
- Be careful not to damage the O-ring.
- Be careful not to damage the lip of the direct clutch drum.



#### 3. INSTALL OVERDRIVE DIRECT CLUTCH PISTON

- (a) Coat the overdrive direct clutch piston with ATF, and install it to the direct clutch drum.





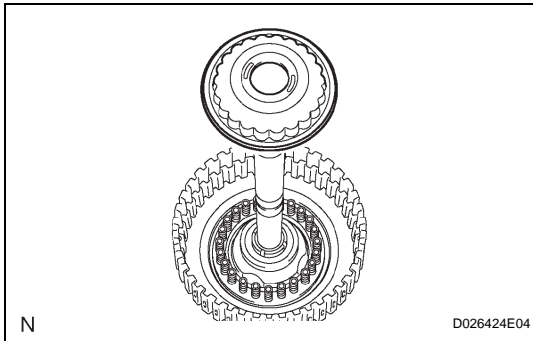
#### 4. INSTALL OVERDRIVE CLUTCH RETURN SPRING SUB-ASSEMBLY

- (a) Install the overdrive clutch return spring to the direct clutch drum.

**NOTICE:**

After installing the spring sub-assembly, check that all of the springs fit in the piston correctly.

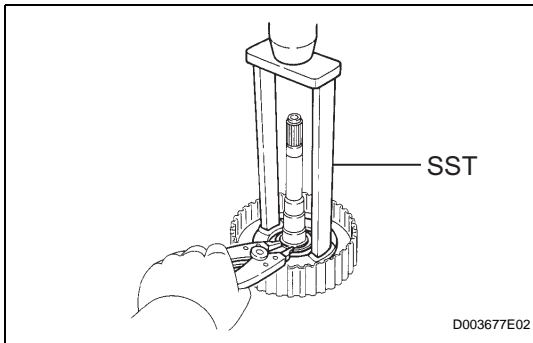
- (b) Coat the clutch balancer with ATF.



- (c) Install the clutch balancer to the direct clutch drum.

**NOTICE:**

- Be careful not to damage the lip of the direct clutch balancer.
- Make sure that the lip of the seal is not pinched and that it has no other defects.
- Apply sufficient ATF to the sealing lip before installing the clutch balancer.



- (d) Place SST on the clutch balancer and compress the overdrive clutch return spring with a press.

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- (e) Using a snap ring expander, install the snap ring to the direct clutch drum.
- (f) Be sure that the end gap of the snap ring is not aligned with the spring retainer claw.

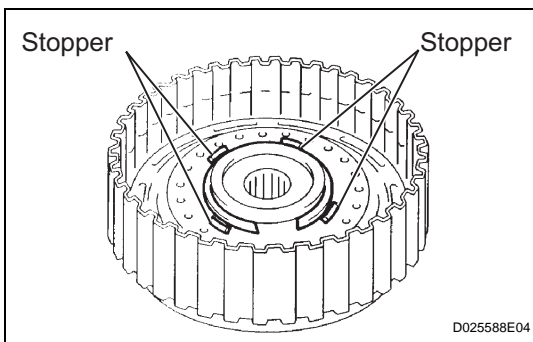
**NOTICE:**

- Stop the press when the spring seat is lowered to a position 1 to 2 mm (0.039 to 0.078 in.) from the snap ring groove. This prevents the spring seat from being deformed.
- Do not expand the snap ring excessively.

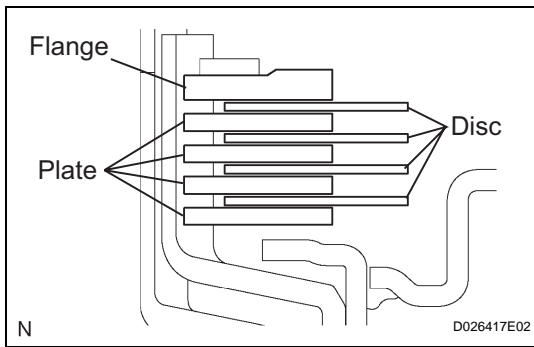
- (g) Set the end gap of the snap ring in the piston shown in the illustration.

**NOTICE:**

The end gap of the snap ring should not align with any of the stoppers.



AX

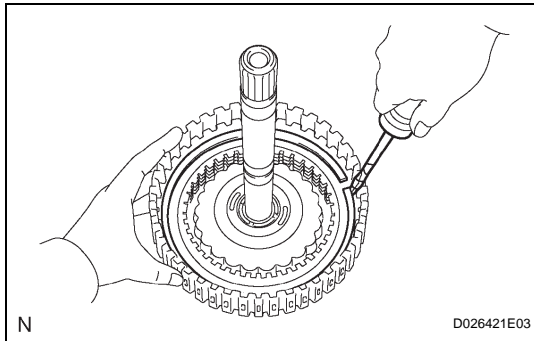


## 5. INSTALL OVERDRIVE DIRECT CLUTCH DISC

- (a) Coat the 4 discs with ATF.
- (b) Install the 4 plates, 4 discs and flange to the intermediate shaft.

### NOTICE:

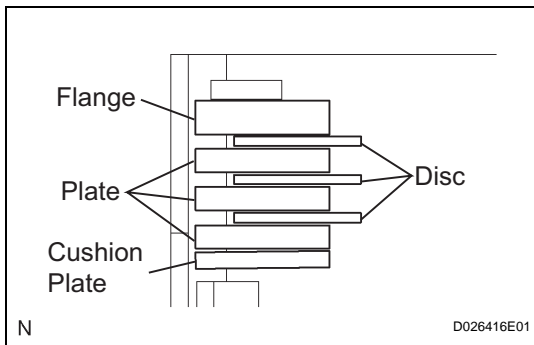
**Make sure that the plates, discs and flange are installed as shown in the illustration.**



- (c) Using a screwdriver, install the snap ring.
- (d) Check that the end gap of the snap ring is not aligned with one of the cutouts.

### NOTICE:

**The snap ring should be fully engaged in the groove of the drum.**

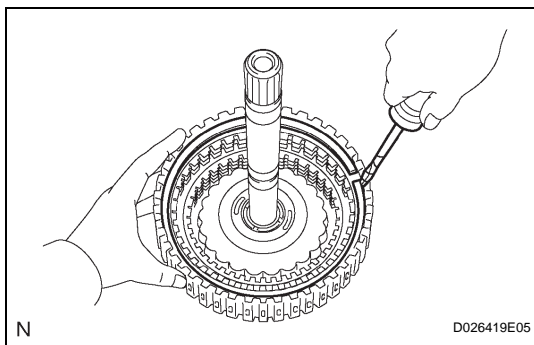


## 6. INSTALL DIRECT MULTIPLE DISC CLUTCH DISC

- (a) Coat the 3 discs with ATF.
- (b) Install the cushion plate, 3 plates, 3 discs and flange to the intermediate shaft.

### NOTICE:

- **Install the cushion plate with the mark on the white surface facing towards the plate.**
- **Be careful of the order of cushion plate discs, plate and flange.**

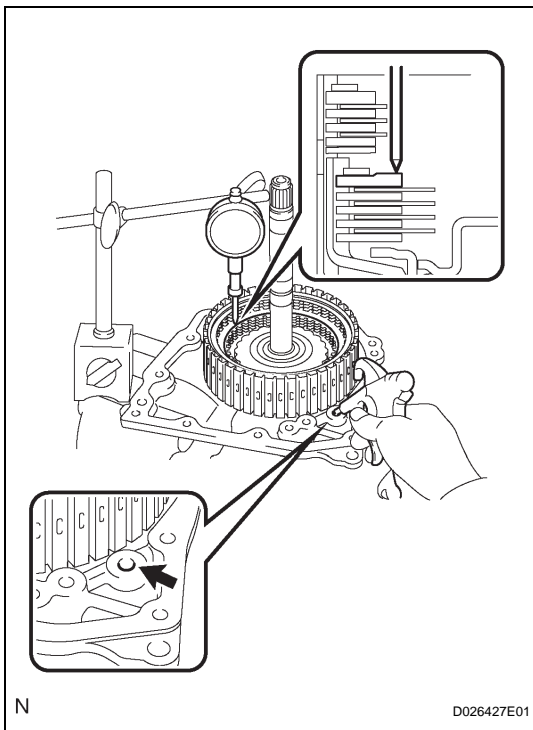


- (c) Using a screwdriver, install the snap ring.
- (d) Check that the end gap of the snap ring is not aligned with one of the cutouts.

### NOTICE:

**The snap ring should be fully engaged in the groove of the drum.**





## 7. INSPECT PACK CLEARANCE OF DIRECT CLUTCH AND OVERDRIVE CLUTCH

- (a) Using a dial indicator, measure the direct clutch and overdrive clutch pack clearance while applying and releasing compressed air (392 kPa, 4.0 kgf/cm<sup>2</sup>, 57 psi).

### Standard pack clearance:

**0.61 to 0.83 mm (0.0240 to 0.0327 in.)**

If the pack clearance is less than the minimum, parts may have been assembled incorrectly, so check and reassemble them again. If the clearance is not as specified, select another flange.

### HINT:

There are 7 different thicknesses of flanges available.

### Standard flange thickness

No.	Thickness	No.	Thickness
0	2.5 mm (0.098 in.)	4	2.9 mm (0.114 in.)
1	2.6 mm (0.102 in.)	5	3.0 mm (0.118 in.)
2	2.7 mm (0.106 in.)	6	3.1 mm (0.122 in.)
3	2.8 mm (0.110 in.)	-	-

## 8. INSPECT PACK CLEARANCE OF REVERSE CLUTCH

- (a) Install the intermediate shaft onto the transaxle rear cover.
- (b) Using a dial indicator, measure the direct clutch pack clearance while applying and releasing compressed air (392 kPa, 4.0 kgf/cm<sup>2</sup>, 57 psi).

### Standard clearance:

**0.60 to 0.82 mm (0.0236 to 0.0323 in.)**

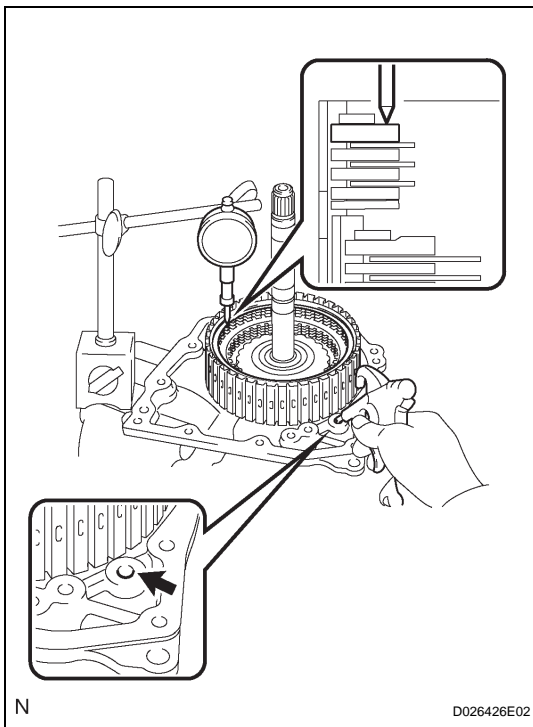
If the pack clearance is less than the minimum, parts may have been assembled incorrectly, so check and reassemble them again. If the clearance is not as specified, select another flange.

### HINT:

There are 7 different thicknesses of flanges available.

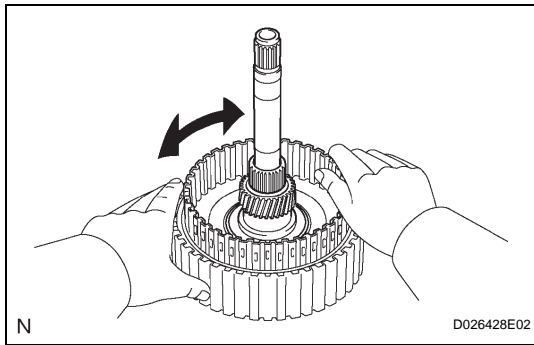
### Standard flange thickness

No.	Thickness	No.	Thickness
1	3.0 mm (0.118 in.)	5	3.4 mm (0.134 in.)
2	3.1 mm (0.122 in.)	6	3.5 mm (0.138 in.)
3	3.2 mm (0.126 in.)	7	3.6 mm (0.142 in.)
4	3.3 mm (0.130 in.)	-	-





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**9. INSPECT DIRECT CLUTCH ASSEMBLY**

- (a) Check that the disc rotates when rotating the disc after inserting the rear planetary sun gear.

**NOTICE:**

**Do not place the rear planetary sun gear in a vise.**